

CLAIMS:

1. A sawdust-free wood cutting apparatus comprising:

a frame,

a guide mounted to said frame for guiding a piece of wood along a feed path having a cutting zone,

at least one circular blade mounted in said cutting zone and driven in rotation about an axis transversal to said feed path, said circular blade having a toothless circumferential cutting edge,

a source of power driving said circular blade about said axis, and

a feeder advancing the piece of wood to be cut through said cutting zone at a linear speed substantially equal to a tangential speed at said toothless circumferential cutting edge of said circular blade.

2. A sawdust-free wood cutting apparatus as defined in claim 1, wherein said guide includes a roller mounted on one side of said feed path and biased in rolling engagement with a side of the piece of wood while the piece of wood is advanced along said feed path.

3. A sawdust-free wood cutting apparatus as defined in claim 2, wherein an axially extending gliding surface is provided on a side of said feed path opposite said roller, the roller pushing the piece of wood against said gliding surface.

4. A sawdust-free wood cutting apparatus as defined in claim 2, wherein said roller is rotatably mounted on a pivot plate, said pivot plate being

pivotally mounted for pivotal movement about an axis normal to a support surface of said frame.

5. A sawdust-free wood cutting apparatus as defined in claim 4, wherein said roller is maintained in contact with the piece of wood by a piston and cylinder arrangement.

6. A sawdust-free wood cutting apparatus as defined in claim 5, wherein said piston and cylinder arrangement includes a piston pivotally connected to said pivot plate, the piston being linearly slidable in a cylinder pivotally connected to a base plate to which said pivot plate is mounted.

7. A sawdust-free wood cutting apparatus as defined in claim 6, wherein said base plate is adjustably mounted to said support surface of said frame for releasably securing the base plate at various distances from an axially extending gliding surface provided on a side of said feed path opposite said roller.

8. A sawdust-free wood cutting apparatus as defined in claim 3, wherein said axially extending gliding surface is adjustably mounted to a support surface of said frame.

9. A sawdust-free wood cutting apparatus as defined in claim 1, wherein said source of power includes a single motor, and wherein said circular blade and said feeder are driven by said single motor through a gear box having first and second outputs respectively connected to first and second transmissions configured to ensure a linear speed

ratio of 1:1 between the tangential speed at the circumferential cutting edge of the blade and the advancing speed imparted to the piece of wood by the feeder.

10. A sawdust-free wood cutting apparatus as defined in claim 1, wherein said feeder includes a power driven feed roller adapted to frictionally engage a top surface of the piece of wood.

11. A sawdust-free wood cutting apparatus as defined in claim 10, wherein said feeder further includes a power driven discharge roller adapted to frictionally engage the top surface of the piece of wood to be cut, said feed and discharge roller being respectively located upstream and downstream of said circular blade relative to a direction of travel of the piece of wood through the apparatus.

12. A sawdust-free wood cutting apparatus as defined in claim 10, wherein said power driven feed roller is supported by an overhead mounting structure comprising a roller mounting plate mounted for vertical sliding movement along a vertical guide.

13. A sawdust-free wood cutting apparatus as defined in claim 12, wherein a biasing structure acts on the roller mounting plate for translating and positioning the feed roller against the top surface of the piece of wood to be processed.

14. A sawdust-free wood cutting apparatus as defined in claim 13, wherein said biasing structure includes a piston and cylinder arrangement.

15. A sawdust-free wood cutting apparatus as defined in claim 1, wherein said at least one circular blade includes upper and lower circular blades, and wherein the blades are driven in opposite direction by said source of power so that the tangential speed at the periphery thereof be equal to the advancing speed of the piece of wood to be cut.

16. A sawdust-free wood cutting apparatus as defined in claim 15, wherein said upper and lower circular blades are coplanar and placed slantwise behind each other.

17. A method of cutting a piece of wood, comprising the steps of: driving in rotation a blade having a smooth outer cutting circumference, bringing a piece of wood in contact with said blade at a speed substantially equal to a tangential speed at said smooth outer cutting circumference.

18. A method as defined in claim 17, further comprising the step of guiding the piece of wood while the same is being advanced to the blade.

19. A method as defined in claim 18, wherein the guiding step is effected by pushing the piece of wood against a lateral guiding surface.

20. A method as defined in claim 17, wherein the step of bringing a piece of wood in contact with the blade is effected by engaging one face of the piece of wood with at least one power driven roller.